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10/646,027	08/22/2003	Chao Xiang Shi	SHI003 US	9268

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EXAMINER	
AZEMAR, GUERSSY	
ART UNIT	**PAPER NUMBER**
2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/646,027	SHI, CHAO XIANG	
	Examiner	Art Unit	
	Guerssy Azemar	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08/25/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Danagher et al. (5,959,749).

(1) With respect to claim 1:

Danagher et al. teaches an optical communication network comprising an optical communication ring, an optical reference node connected in said ring, said optical reference node comprising:

an input terminal (L2 in figure 2) of said optical reference node coupled to an input terminal (301 in figure 2) of an optical demultiplexer (300 in figure 2), said demultiplexer having a plurality of output terminals (B1, B2...BL in figure 2);

an optical multiplexer (350 in figure 2) having an output terminal (L3 in figure 3) and a plurality of input terminals (C1, C2,...CL in figure 2), said output terminal of said multiplexer being coupled to an output terminal of said optical reference node (reference node 400 in figure 4, the output of multiplexer 402 is coupled to the output of the node 400), said input terminals of said multiplexer being coupled to corresponding output terminals of said demultiplexer via a series of parallel optical lines (L13 and L18 in figure 2);

a plurality of optical switches (105 in figure 2, column 2, line 38) connected, respectively, in said series of parallel optical lines (B1, B2,...BL in figure 2, column 2, line 39);

a plurality of voltage-controlled optical attenuators (115 in figure 2, column 7, line 4, the phrase : "those not shown in each of the other signal paths" prove the existence of a plurality of attenuators) connected, respectively in said series of parallel optical lines (B1, B2,...BL in figure 2); and

an optical channel monitor (200 in figure 2), an input terminal of said optical channel monitor being coupled to said output terminal of said multiplexer (L23 and L3 in figure 2 are linked), an output terminal of said optical channel monitor being coupled to said voltage-controlled optical attenuators (L22 in figure 2).

(2) With respect to claim 4:

Danagher et al. teaches the optical reference node (seen in figure 2), wherein each of said optical switches (105 in figure 2) is connected between one of said output terminals of said demultiplexer (L13 in figure 2) and one of said voltage-controlled attenuators (115 in figure 2).

(3) With respect to claim 5:

Danagher et al. teaches the optical reference node (seen in figure 2), wherein each of said switches (105 in figure 2) is a 2X2 switch (column 4, line 58).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 6 - 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Xiao et al. (20020101636).

(1) With respect to claim 6:

As shown in figure 3 Xiao et al. teaches An optical communication network comprising an optical communication ring, said ring comprising a plurality of optical add/drop nodes, each of said add/drop nodes comprising:

a controller (420 in figure 4);

first and second optical add/drop filters (406a and 406b in figure 4), said first add/drop filter (406a in figure 4) being coupled to an input terminal of said add/drop node (402 "input terminal" connected to 304 "add/drop node") and being set to pass a predetermined optical channel (404 in figure 4), said second add/drop filter (406b in figure 4) being coupled to an output terminal of said add/drop node (434 in figure 4); and

a voltage-controller attenuator (418 "VOA" in figure 4) and an optical power meter (contained in the controller to calculate the values P2 and P1, the power meter although not explicitly disclosed in the reference is used to calculate the power at different points in the add/drop node. The formulas used to perform these calculations are disclosed in page 3, paragraphs 0024, 0033. Therefore the use of the power meter is inherent as to its functional similarities.), a control terminal of said voltage-controlled attenuator being

coupled to said controller (426 in figure 4), said optical power meter being connected so as to measure the power of an optical channel emerging from said voltage-controlled attenuator and to deliver a signal representing said power to said controller (Power is delivered to controller through tap 416 and 424 in figure 4).

(2) With respect to claim 7:

Xiao et al. teaches the optical communication network further comprising an optical service channel, said optical service channel comprising:

a device for measuring a power at a first point in said optical service channel (420 in figure 4, calculating P1);

a means for transmitting a data signal in said optical service channel representing said power at said first point (414 "x% tap" in figure 4, through 422 in figure 4);

a device for measuring a power of said optical service channel at a second point in said optical service channel (416 "y% tap" through 424 in figure 4).

(3) With respect to claim 8:

Xiao et al. teaches the optical communication network, wherein said means for transmitting comprises a computer (420 in figure 4, the controller is a computer, which is a machine for carrying out the power calculations).

(4) With respect to claim 9:

Xiao et al. teaches the optical communication network comprising a means for comparing an output of said device for measuring power at said second point

with said data signal (420 in figure 4, as mentioned in page 3, paragraph 0023, "the controller operates to match the powers of the add and drop signals", which necessarily means by comparison P1 when compared to P2 must be equal).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danagher et al. (5,959,749) in view of Xiao et al. (20020101636).

(1) With respect to claim 2:

Danagher et al. teaches all of the subject matter as described above, except for the optical reference node further comprising an optical pre-amplifier connected between said input terminal of said optical reference node and said input terminal of said demultiplexer.

However, Xiao et al. teaches the optical reference node further comprising an optical pre-amplifier connected between said input terminal of said optical reference node and said input terminal of said demultiplexer (306.n in figure 3).

There is a registered power loss between the demultiplexer and the multiplexer. Such loss cannot be tolerated since it is more suitable to have equal power levels at any point during transmission of a signal. Therefore it would have been obvious to one of

ordinary skill in the art at the time of the invention to pre-amplify the signals as taught by Xiao et al. before they enter the reference node taught by Danagher et al. in order to fight the loss occurred in the span of fiber during transmission. Doing so, would help reach more customers (page 1, paragraph 0005).

(2) With respect to claim 3:

Danagher et al. teaches all of the subject matter as described above, except for the optical reference node further comprising an optical boost amplifier connected between said output terminal of said multiplexer and said output terminal of said optical reference node.

However, Xiao et al. teaches the optical reference node further comprising an optical boost amplifier connected between said output terminal of said multiplexer and said output terminal of said optical reference node (306.1 in figure 3).

It is desirable to have measurable amount of power in transmission system where dissipation is a common problem due to long distances traveled by certain signals. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the boost amplifier as taught by Xiao et al. as they leave the reference node taught by Danagher et al. in order to stretch the link distance and reach more customers (page 1, paragraph 0005).

7. Claims 10 -12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xiao et al. (20020101636) in view of Chin et al. (6,885,822).

(1) With respect to claim 10:

Xiao et al. teaches the first and second point of the optical service channel (414 "first point and 416 "second point" in figure 4).

However Xiao et al. does not teach the communication network, wherein said first point is located near an optical reference node and said second point is located near an optical add/drop node.

Chin et al. teaches the communication network, wherein an optical service channel is located between the nodes (OSC in figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the service channel by placing the first point near the reference node (node 4 in figure 1) and the second point near an add/drop node (node 1 in figure 1) as taught by Chin et al. in the network taught by Xiao et al. because in doing so the wavelength management would be more efficient (column 2, line 14).

(2) With respect to claim 11:

Xiao et al. teaches the first and second point of the optical service channel (414 "first point and 416 "second point" in figure 4).

However Xiao et al. does not teach the communication network, wherein said first point is located near a first optical add/drop node and said second point is located near a second optical add/drop node.

Chin et al. teaches the communication network, wherein an optical service channel is located between the nodes (OSC in figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the service channel by placing the first point near a first optical

add/drop node (node 4 in figure 1) and the second point near a second optical add/drop node (node 3 in figure 1) as taught by Chin et al. in the network taught by Xiao et al because it would make he management of the wavelength more efficient (column 2, line 14).

(3) With respect to claim 12:

Xiao et al. teaches the first and second point of the optical service channel (414 "first point and 416 "second point" in figure 4).

However Xiao et al. does not teach the communication network, wherein said first point is located near an optical add/drop node and said second point is located near an optical reference node.

Chin et al. teaches the communication network, wherein an optical service channel is located between the nodes (OSC in figure 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the service channel by placing the first point near a first optical add/drop node (node 2 in figure 1) and the second point near an optical reference node (node 1 in figure 1) as taught by Chin et al. in the network taught by Xiao et al because it would make he management of the wavelength more efficient (column 2, line 14).

8. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xiao et al. (20020101636) in view of Lauder et al. (20020105692).

(1) With respect to claim 13:

As shown in figure 3, Xiao et al. teaches an optical communication network comprising an optical communication ring, said ring comprising a plurality of optical add/drop modules, each of said add/drop modules comprising:

a first optical filter (406a in figure 4) having an input terminal (402 in figure 4) and a drop terminal (408 in figure 4), said input terminal of said first optical filter being coupled to an input terminal of said add/drop module (430 in figure 4); and

a second optical filter (406b in figure 4) having an input terminal coupled to an output terminal of said first optical filter (404 in figure 4), an output terminal coupled to an output terminal of said add/drop module (412 "output terminal of filter" and 434 "output terminal of add/drop module"), and an add terminal (410 in figure 4); wherein said first optical filter is adapted to filter out a first channel included in an optical transmission at said input terminal (Lamda.1 in figure 4) of said first optical channel and to deliver said first channel to said drop terminal (432 in figure 4), and said second optical filter is adapted to add said first channel (Lamda.1 in figure 4, on the right side) appearing at said add terminal to an optical transmission (436 in figure 4) appearing at said input terminal of said second optical filter (L4 in figure 4) such that said first channel appearing at said add terminal is combined with said optical transmission at said input terminal of said second optical filter (L3 "optical transmission" combined with L4 "add terminal" and 406b "second optical filter" in figure 4);

However Xiao et al. does not teach a hub, said hub being connected to said ring, said hub comprising an optical mux filter and an optical demux filter, said demux filter

being coupled to an input terminal of said hub, said mux filter being coupled to an output terminal of said hub.

Lauder et al. teaches a hub (13 in figure 1), said hub being connected to said ring (connected through lamda bands 1, 2, 3 shown in figure1), said hub comprising an optical mux filter (210 in figure 15) and an optical demux filter (202 in figure 15), said demux filter being coupled to an input terminal of said hub (301 in figure 15), said mux filter being coupled to an output terminal of said hub (319 in figure 15, also illustrated in figure 7).

With the huge increase in the amount of data being transmitted through the network it is recommended to use techniques capable of dealing with more and more customers on the other end of the transmission lines. The hub provided by Lauder et al. handles the switching of more than a 128-wavelength ring. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the hub as taught by Lauder et al. in the network ring taught by Xiao et al. because it seeks to provide an alternative that is more flexible and cost effective (page 1, paragraph 0011).

(2) With respect to claim 14:

Xiao et al. teaches all of the subject matter as described above, except for the optical communication network, wherein said hub further comprises a plurality of terminals each of which is adapted to carry a channel of an optical transmission.

However, lauder et al. teaches the optical communication network, wherein said hub further comprises a plurality of terminals each of which is adapted to carry a channel of an optical transmission (16+M channels in figure 7).

WDM combines a plurality of channels onto one fiber. The multiplexer outputs the many channels onto one fiber and the demultiplexer takes that one fiber and outputs the many frequencies it carries. The hub is taught by Lauder et al. contains both the mux and the demux. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the said hub as taught by Lauder et al. in the network taught by Xiao et al. because it would make network cheaper (page 1, paragraph 0011).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guerssy Azemar whose telephone number is (571) 270-1076. The examiner can normally be reached on Mon-Fri (every other Fridays off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571)272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Guerssy Azemar

09/20/2006

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER